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OF FISH-CULTURISTS, LAKEOWNERS, SPORTS MEN, LAKE-SITE OWNERS, AND OTHER INTERESTED PERSONS! SEND IN THE NEWS!

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The Fish-Culturist News

Dedicated to Conservation, Fish-Culture, Lake Operation, — and Good Sportsmen Everywhere

VOLUME 1 | DURANT, OKLA. — FEBRUARY, 1944 | NUMBER 3

Triple-A Building Farm Ponds

Open Season On Buffalo In Arizona

50 Head To Be Taken

BY CHAS. NIEHUIS
Arizona State G&F Comm.

If old Buffalo Bill were alive today, he'd have to ride a long, long way to kill a buffalo in these times. In fact, he wouldn't be able to do it in his old stomping grounds at all. Buffalo herds are under total protection there, and he'd really be surprised when he did find a herd. More than likely, he'd put his horse into a gallop and the buffalo wouldn't even run. They wouldn't be able to, because there would be a fence in their way. A park official would come out and arrest Bill and take him off to court, to be fined for molesting the animals.

But, if Buffalo Bill looked far enough to the west he could find a herd that was not under fence! It would be far from the buffalo's natural habitat, for they never ranged any farther west than the Pecos River in New Mexico. It would be way out in Arizona, the only place left in the United States where an ordinary hunter even has a chance to kill a buffalo. How the herd got there in the first place is a story in itself.

The Arizona buffalo hunt is open to participation by the public. Surplus animals are harvested from the state-owned herd each year. Numbering some two hundred or more animals, the herd has a natural increment of about 25 per cent annually. Each hunt crops the herd back to two hundred head, this being within the carrying capacity of the range in its present condition as it is used jointly by a greater number of cattle. Thus, the best breeding stock is held to produce and perpetuate the Arizona buffalo herd.

The number of adult animals to be taken each spring is determined by the calf crop of the previous year.

Naturally there are many more hunters seeking buffalo hunting permits than there are animals available. So, the Arizona Game and Fish Commission has worked out a fair, sporting proposition for selection of buffalo hunters.

Purchasers of the new year's hunting licenses, during a designated period and usually during the first few weeks of January, register their name, address and new hunting license number in the offices of the commission. These are typed up and placed in capsules and put in a large jar. The drawing is held on a predetermined day and at a certain time. The names of a certain number (predetermined by the buffalo to be killed) of hunters are drawn and listed. Then an equal number of alternates are drawn. If the holder of a buffalo hunting permit cannot go an alternate has the privilege.

The hunt is under direct supervision of wardens of the Arizona Game and Fish Commission.

Dates for the hunt are set and this year hunting will begin February 12th and extend for several days until 50 animals are killed.

Each hunter is charged $5, which is half the fee paid by the state to skilled skinners and butcherers. The hunter gets one front quarter, head and hide of the animal he has killed and the privilege of buying one other quarter at 25c per pound for the front and 30c per pound for a hind.

The balance of the meat is con-

(See No. 2, Page 2

Arizona's 1944 Buffalo Herd

Picture, curtesy of Arizona State G&F Comm.

The above picture was made recently of the Arizona buffalo herd. From this herd, 50 animals will be harvested this month. The herd consists of approximately 200 head, and the increase is about 25 per cent per year. That is the number the Arizona State Game and Fish Commission permits hunters to take.

Hi, Fellas

Whitetailed buck, fawn, is a young fellow of last year's fawn crop. Rocky Mountain Mule Deer have greater population numbers in the state of Arizona than do Whitetailed Deer. Whitetails are faster, more alert and harder to bag. This makes them superior to the Rocky Mountain Mule Deer in the eyes of many sportsmen.

Send FCN news, names, addresses

No Good, Take 'Em Back

A "PALEFACE" gave one of our Oklahoma Indians a fine bird dog. A few days later the Indian brought the dog back to the donor.

"What's the matter with that dog, Chief, I know he's about the best in the country. Why are you bringing him back?" asked the paleface.

"Huh," said the chief, "him no good—all it do is stand there and look at 'em."

Lobo Wolf Killed

THE lobo wolf of the Old West has about passed into the great beyond. The passing of one more is such an oddity that it makes news. Such is the one that Billy Kelly, a stockman on the Apache Indian reservation in Arizona caught in a trap the first week in December. The ferocious stock-killer (sometimes known as a timber wolf) measured seven and a half feet from tip to tip.

TEXAS G&F COMMISSION PUBLISHES MAGAZINE

The Texas game, fish and oyster commission publishes a monthly magazine which anyone may receive for 50 cents per year. It is filled with the goings-on of that state department, and has many fine articles in each issue.

If you want to subscribe for this well-written, well-illustrated, and highly interesting magazine, send 50 cents (not stamps) to Texas Game and Fish, Walton Building, Austin, Texas.

Build Your Pond This Year

The federal government has launched one of the best programs it has ever undertaken —that of financing the construction of earthen dykes for the creation of ponds on farms throughout the country. The primary objective of the program is to create stock ponds for farmers. While there will be only a small portion of these ponds suitable for the raising of fish, some will afford an excellent opportunity for those interested in a fish pond to have such a body of water. By no means do authorities desire to have this program known as a fish-pond construction program. They do, however, advocate stocking the suitable ponds with fish for food purposes.

The program calls for payment of 15 cents per cubic yard for the first 2,000 yards, and 10 cents per cubic yards for the following 3,000 yards, which makes a total of 5,000 cubic yards the government will allow payment for. The 5,000 cubic yard allowance is as much as will be paid for one dam.

However, if a person can show need for a second dam, then he may also build it, and receive payment. As an example, if you should have a long ravine or canyon, and you wanted to build a series of ponds, then you can do this and at the same time receive payment for it. Officials point out, however, that they would rather give every farmer one pond than to have a few farmers with several ponds, and for that reason they do not encourage a person to build more than one dam. In other words, they want to spread the program as much as possible.

A Bottleneck

There is a bottleneck at the presen time in the program, however. That is the fact that earth-moving equipment is scarce, and contractors are reluctant to move dirt for 10 and 15 cents, whereas they have been getting as much as 30 cents. In our own county, for instance, approximately 30 ponds have been built, and there are 2,000 farmers on the want-list.

The shortage of contractors and dirt-moving equipment can be overcome, however, by the farmers themselves doing their own work.

Payment Within Two Weeks

If a contractor is employed, payment for dam building work is received at two-week intervals. If one does his own work, however, payment will not be made until fall.

In conjunction with the dam building program, the government also is paying for terracing and sodding. The pay received for terracing is $52.80 per mile. For sodding with Bermuda grass, payment is $5 per acre, for other

(See No. 1, Page 2)

The Fish-Culturist News

Dedicated Primarily to Assembling and Disseminating Practical Fish-cultural Information.

FOUR ISSUES PER YEAR.....Subscription Price, $1.00
THOMAS J. RENICK..... *Editor and Publisher*

A Bigger and Better FCN in the Making

ONE man wrote the editor not long ago and predicted that within a few months our desk would be piled high with articles and stories by those who are interested in seeing more and better conservation practices in this country, and especially better fishing and hunting. From the looks of our office right now, the paper isn't doing badly, and all signs point to the correctness of the particular fellow's prediction. As the paper gains in circulation and makes new friends throughout the fish and game raising world, and the hunting and fishing world, it seems most logical to think that the paper will be more interesting and more informative as time goes by.

We want to thank each of those who have in the least lent their cooperation in helping find those who are interested in such a publication. By no means did all those on our subscription list subscribe for the paper when the subscription price was announced, but a sufficient number did subscribe to pay all the expenses incurred in printing and mailing the first two editions of the paper. If succeeding issues gain as many new subscribers as the first two, the financial end will be well taken care of insofar as the actual cost of printing and mailing are concerned. If the paper does no more than gain a fair circulation until the end of the war, it will have accomplished what the publisher set out to do. We don't want anyone to get the idea we are printing the paper for financial reward, but rather to try to do our bit in bettering conservation. (What good does it do a man to make money anymore?) If we can furnish the fellows out in the country with the information necessary to raise fish and game, we will consider our efforts well rewarded. We believe that one man in the country can do more good for our wildlife than several men behind a desk, but we must also have office men to carry out the executive end of our efforts.

To those of you who have subscribed and who have sent in articles for publication, we thank you most heartily for helping in the beginning, when help is needed more than any other time. We must have friends, or else we fail. If the paper should happen to do what we have had in mind for several years,—slip over into a bi-weekly publication—no doubt it would be a welcome visitor to a lot of sportsmen in the country. When we have gathered a sufficient number of names and addresses, we will conduct a survey, and find out whether or not all concerned would be interested in such a publication.

One man wrote the editor and said that the fertilization story in the last issue was worth more than ten years' subscriptions. There's just no way to evaluate knowledge. That's what we want to pass along.

As those of you who received copies of the first two issues know, the primary objective of the paper is to gather and disseminate practical information on fish-culture, lake operation, game farming, and conservation in general—and dedicated to good sportsmen everywhere. We know of no better way to really learn how to do anything than to ask the people who are ACTUALLY doing the work. In some cases we find that it is against the rules for men to write anything for publication. We're not trying to change things or set the world on fire or anything like that, but restrictions which prevents a man from passing along knowledge he has gained through long years of experience smells to high heaven.

Now, if you know anything about how to create better hunting and fishing and don't contribute what you know and think, it isn't our fault. The columns are open to anyone with knowledge, experience and information to pass along to our fellow outdoorsmen,—or to a good hunting or fishing story.

Now—what do you think about it?

No 1—

grasses, $4 per acre.

You can easily see what this program amounts to from the viewpoint of building fish ponds. If you have a suitable pondsite, here is the grandest opportunity that ever came along. You not only will receive pay for building your dam, but also for terracing and sodding around it.

For the most part, however, only a few of the ponds which so far have been built will be of much consequence as fish ponds, due to the fact that they are less than an acre in size. Too, the builders are doing no more than merely throwing up a dam. No drainage systems are being constructed. A drainage system is, we believe, just about as important as building the dam itself, if the pond is to be utilized to the greatest extent.

Commercial Prospects Look Good

After having given this program considerable study, it seems that a fish pond can be made not only to provide food and recreation, but also can be made to be a source of additional farm income.

We have received reports that some farmers ponds have earned upwards of $500 per year. This is done by placing a charge on fishing privileges. One man in Indiana who owns a lake and sells fishing permits for $1 per family, made a little more than $500 in 1943.

If you want to make your lake, here's a suggestion:

First, write your own state game and fish commission (at the state capitol) and find out exactly what the requirements are for you to raise fish and sell them on the market . . . just as you would cattle. Stock your lake with the fish you raise yourself, or buy your stocking fish from a commercial hatchery. When the fish are large enough to catch, open your lake for fishing. Put a limit on the number allowed any one person. Charge a certain amount per person. If your lake provides good fishing, you won't have to worry about customers. They'll be there.

If you haven't had experience in building dams we have a dandy little book which sells for $1 that will enlighten you considerably on dam building and fish raising. Also read Mr. Boone's article in another column of this paper, and write to the Federal Wildlife Service, Chicago, Ill.

Owing to the fact that a drainage unit built into the dam makes for easier and better management, be sure to built the system if at all possible.

If you have stock to water, place a fence around the entire lake, including the dam, and provide a watering trough below the dam, and run a pipe from the lake to the watering trough. By using a floater-cutoff apparatus, you can have a full trough of water at all times for your stock. The fence will prevent the cattle from climbing up and down the dam, and also keep them out of the lake, which is a good thing for your fish, especially during spawning season.

Use commercial fertilizer for feeding your fish.

If you should have a suitable ravine(or can tap an everlasting stream of water and turn a portion of its water into your lake), and if you have room for more than one lake, we suggest that you build the first pond under this government lake building program. The revenue derived from the first lake can be used to build other ponds later, in case the government decides to discontinue its present lake-building program.

Fishermen's Opportunity

It seems that this could also be an opportunity for fishermen living in town. If you know a land owner who has a lake-site, and who doesn't intend to build a lake, certaily it would do no harm for a group of fishermen to persuade the landowner to build the lake. The fishermen also could lend a hand in building the dam, terracing and sodding.

To give you a rough idea just how large a dam 5,000 cubic yards of earth will make, we point out these figures: Averaged, the dam would be 200 yards long, or 600 feet; six yards or 18 feet thick; 4 yards or 12 feet high. Now, that's a pretty big dam. There are lots of locations where this amount of earth put into a dyke will make a good lake. During the course of a conservation with a fellow citizen relative to such a dam, he stated that he believed he knew one place where it would make a lake above 200 acres. Surely there must be many more over the country.

Owing to the fact that fish grow in proportion to the temperature of the water and the amount of food they can get, this program will not be the incentive in the Northern tier of states that it will be in the Southern, but if the people as a whole will go into this thing, much good will come of it.

Irrigation Angle Important

There is another phase which might be well to consider. That is the irrigation prospects. A fine garden can be grown below the dam.

We have seen several years when only one or two floodings or sprinklings would have meant the difference between growing a bumper vegetable crop and total failure.

One or two good soakings of the soil at the proper time will, in most instances, put vegetables on the table which is something that cannot be overlooked when food production is as vital as it is now.

Go to the Triple-A office in your county, and learn all the details of this lake-building program.

Think it over . . . . and go to work on that dam.

No. 2—

tracted for at the above prices by groups of organized sportsmen of the Arizona Game Protective Association, civic clubs, individuals, etc.

So, Buffalo Bill would have his chance in Arizona. Perhaps he wouldn't be altogether satisfied with the control exerted over his buffalo hunting because he would only be allowed to kill one animal. But, if he stopped to consider he would realize buffalo hunting is possible today, because there are sportsmen in the true sense of the word left in this world, and that wildlife is administered for the benefit of all the people by the Arizona Game & Fish Commission, way down there in the Southwestern part of the United States.

A Whopper!

This is one we picked up at the wildlife meeting held in Durant, Jan. 29, when the compact commission of Oklahoma and Texas met to discuss plans for operation of The Great Lake of the Southwest, which is now forming above the 50 million dollar dam on Red river.

Marion Toole, Texas state biologist reported that a man placed 60 channel catfish in a one-acre pond. There was nothing in this pond in the way of other fish. At the end of a two-year period 56 of the fish were recovered and they all weighed more than ten pounds.

The poundage of fish grown per acre figures out all right—280 per year—but we have never heard of that small a number of fish putting on that much weight so fast.

Marion said he had been able to get more poundage faster on channels than any other specie. He said he had tried bass in ponds and then followed up with channels, and that the figures always showed the channels outgrew the bass. That sounds good to us because we have long been a booster for the channels because of their gameness and their eating quality.

Can anybody top this story on production?

'What Is Conservation?' Here's a Sequel to Mr. Osborn's Story in Last Issue of FCN

From F. Lee Kirby, FCN received a sequel to Mr. Osborn's article in the last issue, "What Is Conservation?".

Mr. Kirby is supervisor of Tonto National Forest, in Arizona. It is one of the best articles received by this publication, and maybe you will have something to say along this line. The article:

I have just read with a great deal of interest and satisfaction the excellent article entitled, "What Is Conservation?" by Livingston E. Osborne, in the December issue of your paper. The article was of particular interest to me because conservation is my work.

Game and fish restoration is one of the important elements of it. During my years in this endeavor it has been my impression that there has been too much of a tendency to go "all-out" for some element of the problem; such, for example, as restriction of hunting. It seems to me that the best gains have been made where a combination of corrective treatment factors were applied. These I would say are composed of:

(1) Public sentiment;
(2) legislation;
(3) predatory animal control;

and last, but by no means least,

(4) adequate vegetative ground cover.

Public sentiment is developed and guided through the game protective associations, wildlife federations, and other similar organizations whose membership give thought and study to the subject, who do a great deal of helpful educational work, and through whose efforts the state game departments are supported and assisted. It is these sportsmen, expressing themelves through their organization, that make the demand for game conservation.

Legislation has probably been depended upon too much, particularly in earlier game control endeavors. It is not a cure-all; yet legislation does have a proper and important place in regulating and limiting the hunting effort, and in providig a basic set-up under which the state game departments and other branches concerned with wildlife can operate.

Control of predatory animals is a highly important part of the general game conservation set-up. We are not interested in raising game for predators. Without such control the main percentage of the game birds and animals would be taken by them.

The last of the combination is the influence of an adequate cover of protective vegetation on the ground. And here is where the land owners or the land managing agencies can contribute most to an abundance of game and fish. The vegetation—all of it, whether it be weeds, grass, shrubs or trees—furnishes food to sustain the game, and natural sheltering places for the breeding and rearing of the young. More has happened to our lands than many people realize. The loss or deterioration through weakened plant vitality, reduced density of ground cover and loss of fertile top-soil through water and wind erosion has been tremendous. Some things are much more easily noticed than others. For example, the losses of immense herds of buffalo that in early days could be seen by the thousands; or the homing pigeon which once thrived in many millions in this country and which once moved in such numbers as to darken the sky; also losses of antelope, deer, quail, turkey and many other animals and birds are easy to visualize. There are people still living within whose memory some of these changes have occurred. But the very slow, gradual loss in vigor, quantity and qualtiy of plant cover along with the disappearance of fertile topsoil are not so easily seen.

These changes were not noted because they were spread over 50, 75, or 100 years or more. No one could detect much difference from one year to another. Always there is a response in growth when rains come after dry periods and many of us have thought the ranges "come back as good as ever"; but the effects are accumulative and finally the resulting depletion becomes serious. Too much of our wild, hilly, mountainous lands have been abusively used so that there is now less live grass sod to put growth onto when rains occur—and what is left has been greatly reduced in strength. There is more bare ground, much of the natural protective cover of dead vegetation is gone, more of the rainfall is lost through quick run-off, and evaporation is greater from bare ground.

It is impossible to reestablish game on lands that have been depleted and impoverished through wasteful use until that condition is corrected. At the time white men first discovered and explored this country, game was abundantly plentiful. But the ground cover conditions were also ideal then. Upon investigation of areas where greatest headway has been made in reestablishing the game supply, it will almost invariably be found that the vegetation also has either been maintained or restored.

I hope that sportsmen will give more and more attention to ground cover conditions, along with their other good efforts in the interest of game conservation.

PICTURES IN THIS ISSUE

The editor wishes to thank the Illinois Dept. of Conservation for use of the duck illustration and the cut used with "Keeping 'em for Prosperity.' Also, thanks to the Arizona G&FC for the deer, hatchery, and buffalo pictures.

Hunt Bass Hatchery In Arizona

Hunt Bass Hatchery, located nine miles east of Phoenix and composed of seven lakes. It is the only place in Arizona where warm water fish are propagated. It is under direction of Herbert L. Reid of the division of fisheries. The foreman is G. L. Evers. It has been in operation since 1931 when construction was first begun. Preparations for producing this year's crop of fingerling bass for stocking the state's lakes and streams have been completed at this hatchery. Six of the seven lakes were emptied during the last summer and the fish taken from them to replenish warm water reservoirs. During the fall of 1943 each lake bed was cleaned of an inch layer of debris, moss, and leaves that collected there. As many as 45 truck loads of dirt are taken from each lake bed. Early in February the lakes are filled with water purchased from the Salt River Valley Water Users' association. After the lakes are filled the shallow waters around the edge are fertilized. This decaying organic matter attracts and creates small water life which is natural food for small fish.

Keeping 'em for Posterity

Upper left, a view of the "skillet" of Skillet Fork creek area, showing the rich bottom land and forest in which wild game abound —but which few hunters penetrate.

Upper right, A few of the Canadian geese raised by Miselbrook.

Lower left, Roy Miselbrook, unofficial game warden of the Skillet Fork wildlife paradise along the wagon trail which leads to his farm.

Lower right, one of the many quail nests found in season near Miselbrook's farm at Skillet Fork.

By E. M. JONES
Salem, Illinois, Editor

The best quail country in the middle west, a forked stream alive with good-sized bass, squirrels so tame they have lost most of their fear of men, a haven for wild Canadian geese and wild ducks—that's underrating the Skillet Fork country in the "wilds" of Meacham township, northeast of Salem, Ill.

But very few hunters, fishermen or trappers invade this sportsman's paradise of Marion county —thanks to Roy Miselbrook, who was born there with more conservation in his veins than has been drilled into most game wardens. Although he owns only 140 acres of this wildlife sanctuary, his promiscuous "No Trespassing" signs and his vigilant patrol, keeps away all but a few friends. Even then, there is more shooting at—than killing.

Familiarly called **the Bee Man because of his 100 colonies of bees,** Miselbrook, due to his intimate understanding, has become a sort of unofficial game warden for the Skillet Fork area. His farm, including his large apiary, is situated smack dab in the middle of the "skillet" of Skillet Fork creek, which takes its name from two creeks circling from the east and west, then joining with a "handle" at the south, forming both a perfect skillet and fork. With heights and valleys and thick woodlands, it's as beautiful as it is rugged.

Twenty-four years ago, when a wild Canadian goose landed there after being winged by a hunter, Miselbrook started raising these colorful birds. He has held a federal permit for the past 11 years. At present, he has more than 30 of them. Added to these, he has a number of wild ducks. Just below his kitchen window, on the steep slope which drops into one of the branches of Skillet Fort creek, he has constructed breakfast tables for the squirrels—and it's a great show to watch the friendly little animals eat. Miselbrook spends many patient hours studying the habits of the wildlife in his area, doctoring them when he finds them injured, trying to coax them into being pets—which explains why he is one of Marion county's most ardent conservationists, and certainly a foremost authority on wild game of the area.

Standing by an old-fashioned well in his back yard, he can see miles of the bottom land and virgin forest. Visitors who find their way to the Miselbrook farm, taking the obscure, winding trail, invariably gasp, "It's the most beautiful sight I ever saw!"

Sometimes they add, however: "I don't see how you stand living way out here in this isolated spot, even though it is beautiful."

But Miselbrook has called Skillet Fork home since his birth, and he's always too busy, there's always something new and interesting to observe, to be concerned about the isolation. After 63 years of it, he prefers it to any other location in Marion county. If he ever moves it would have to be where wildlife abounds—and where he can take a hand in the conservation and development of wildlife.

Through the cooperation of the Salem Sportsman club and the state game farm at Mt. Vernon, young quail and coon are added each year to Skillet Fork. It is a common thing for Miselbrook, or his son, Fred, who has developed as great an interest as his father, to spot a luxurious quail nest filled with eggs, or other evidences of the rapidly increasing wildlife.

Added to his self-initiated work of protecting wildlife, Miselbrook experiments considerably with plants, flowers and trees, trying to see if he can improve any of them —and with great care he has been able to preserve several chestnut trees, almost a rarity now in Marion county due to the spread of disease. From his yard on through the area may be seen evidences of tree grafting and other tree surgery.

Ever since he was big enough to "puff a smoker," the old-fashioned peace-pipe of smoldering wood chips used to quiet bees and spare them the necessity of using their stingers, he's maintained an apiary of his own, which now is a 100-colony proposition. But that is another story.

So—if you want to fish along the handle of Skillet Fork creek, or go coon hunting or quail shooting in the dense meadows or virgin forests of the area, just find your way far off the main highway, along the winding wagon trail, to Miselbrook's farm.

You'll discover the view is breathtaking, anyway, in this nature's paradise off Marion county.

Pond Data Given By Oklahoman

A letter from Glenn Mitchell, Oklahoma state biologist, concerning an experiment which has been in process at the Durant hatchery for some time reveals a few interesting points.

During the spring last year, four ponds were stocked with the same number and specie of fish. Fishing was permitted in two of the ponds and the other two were left unmolested during the spawning season. Purpose of the experiment was an effort to learn whether or not fishing deterred or bothered spawning fish in any way.

Mr. Mitchell writes: . . . "You will be interested to know that these ponds which were fished so heavily during the spawning season had excellent hatches of young fish. They also had a great number of adults left in them. Four-fifths of the population of adults were gotten from one of the fishing ponds and only three-fifths were taken from the other. We drained the pond from which four-fifths of the adults were removed and found a total of almost 13,000 young fish of this year's spawning. (1943). It is physically impossible to grow 13,000 young fish to adult size in this small pond with their low growing capacity. We can very definitely say that the removal of a great number of adults should not cause a lack of young fish to be spawned in these lakes. I will have more data on the experiment later."

At the time this information was received, only two of the four ponds had been drained. However, Mr. John Murphree, superintendent of the hatchery, informs us that since then, another of the ponds has been drained, and that more information will be available later on this experiment.

This is the kind of work it takes to learn what should be done.

More power to Mr. Mitchell and Mr. Murphree, and all the rest of you fellows carrying out experiments.

Send in your data.

Arizona Boosts Employes' Pay

Evidently commission members of the Arizona state fish and game commission are real strategists. Why else would they give such timing to salary raises to employes of the commission as right at the first of the year?

Watch the commission get real cooperation and conscientious effort this year.

It seems to us if our conservation departments are to entice young Americans to take up the work, and if experienced employes are to remain on the job in these inflationary times, salaries in general will have to be raised, in order for the employes to meet the continued rising cost of living.

After all, even outdoorsmen and nature-lovers have to eat. A dollar is worth about 45 cents, so it's not hard to figure out how a working man spends his money.

Hallulajah and glory be to the Arizona state fish and game commission for showing its employes this fine spirit of consideration.

Maybe the rest of the state commissions will take notice.

Ducks Must Eat

Plant Food This Spring

Duckhunting was fair for the most part during the last season, but you probably heard a lot of talk of there being only a few ducks in the country, and that 'the season should be changed." Have you ever stopped to think that there may have been a reason other than the weather and the time of the season, why there weren't plenty ducks on your favorite lake? More than likely the ducks didn't find sufficient food to make their stay in your neck of the woods of any appreciable length of time.

Wm. O. Coon, naturalist, and one of America's foremost authorities on ducks and their feeding grounds, gives here some informa-

program.

tion that every duckhunter should know and put into practice, if he wants good hunting next fall. You can't do anything now about hunting last fall, but you most certainly can about next fall. You won't have to put out much money or effort, either. But "you do have to do something," and that is—provide food.

Speaking of providing food, there is but one legal way to do this. It is illegal to use commercial grains in any way to attract wild ducks for shooting purposes, says Mr. Coon, because that particular form of shooting does not give the ducks a sporting chance. However, the use of natural wild duck foods is perfectly legal, and not only is it permitted, but the federal government and various state conservation departments highly recommend it, because the planting of natural wild duck foods is considered an act of conservation. It helps to establish the necessary feeding grounds to support the wild ducks over their various routes of migration. It provides feed not only during the shooting season, but prior to and after the shooting season. In this way it helps materially in maintaining our supply of migratory water fowl and the perpetuation of a great sport, Mr. Coon said.

Wild Ducks Must Eat

One may have a wonderful pond or water area and a wonderful location right near the flyway. However, it takes something more than just water to attract wild ducks.

Do you know a wild duck has what is termed as a telescope eye? Indeed he can see farther than you can and also has the advantage of being up in the air. As a matter of fact, he can see right down into the waters and observe what's growing there, sort of like you can see farther into the water from an airplane than you can from the surface.

In observing the habits of wild ducks, first in importance is to find out what they are most concerned about. Apparently there are three fundamentals that concern them. First, to find food; second, security or protection from their enemies, and third, to reproduce. When they are reasonably sure of the first two, food and protection, they themselves will take care of the third.

Nature has taken care of all of her wild creatures but man has come along and disrupted the works of nature in many instances, thus making it more difficult for, in this instance, the wild ducks to survive. Many of their natural habitats have been destroyed. However, these wild ducks, having been given the means and instinct to migrate, enables them to seek new areas where they find a suitable living condition.

Wild ducks migrate thousands of miles in search of good feeding grounds and when they locate a suitable place, large numbers will congregate and stay as long as the food lasts or the season will permit. Therefore, the number of wild ducks at your favorite shooting grounds is governed by the natural foods that grow there to attract them. If, by chance, the natural food supply is inadequate, it might be a worthy suggestion to plant it there and thus have more wild ducks and better shooting.

Different species of wild ducks feed upon different kinds of wild food plants. From examinations of wild ducks stomachs, taken in various parts of the country, it has been observed that each kind of wild duck is very partial to two or three certain foods that sort of represent their main dinner course, then there are several others that are like the side-dishes, sort of "fill-ins" to complete the meal.

Variety Needed

A variety of natural wild duck foods in a water area has a marked advantage over the area that has only one food. Several kinds attract different species of wild ducks. The variety also holds them for a longer visit, for some food plants produce earlier and others later in the season.

Some species of wild ducks are more partial to certain types of water area while other species prefer adverse kinds of water conditions.

There are those that obtain their food only in the shallow waters or marsh areas, known as 'marsh ducks' or 'puddle ducks.' These kinds seldom ever dive beneath the water for their food, they just tip up and reach to bottom to obtain the seeds and roots that they like best. Other kinds prefer to dive for their food and feed in from three feet to 15 feet of water. These, known as "divers" go to the bottom, and, taking their favorite food plant by the base of the plant, pull it from the soil and bring it to the water's surface where they rest and eat.

You Can Help Nature

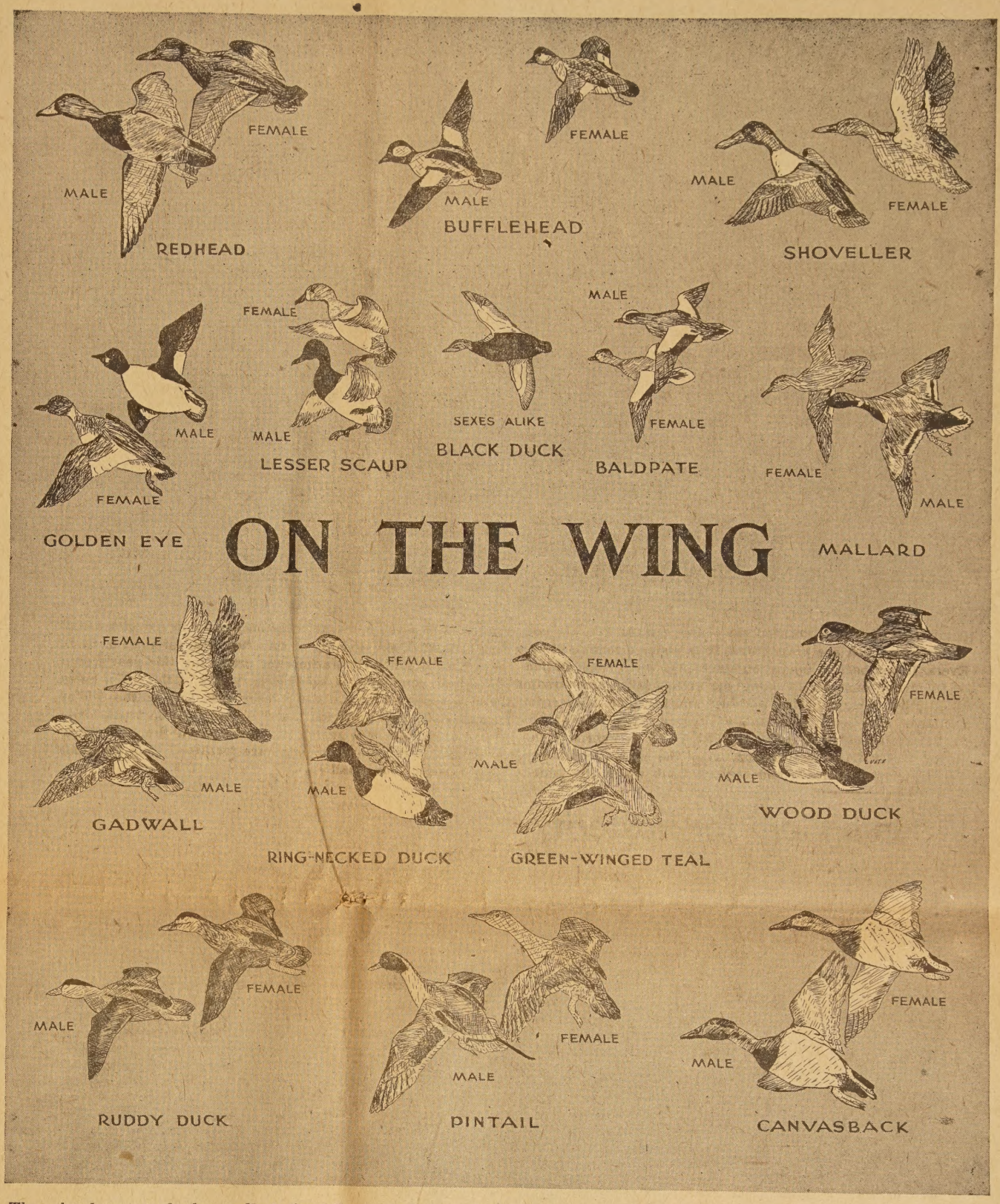
As nature has provided, to prevent the destruction of the food plants when the wild ducks pull them from the soil, there are hibernating buds attached to the parent plant by brittle roots which easily break, leaving many buds in the soil to replenish the growth. Therefore the natural food plants are permanent, and reproduce from year to year unless by their natural enemies or some unusual condition, they are destroyed.

Nature is very complete in her works but slow in progress. There are natural wild water plants that are important as wild duck food, adapted to almost every water condition that exists, but there are many water areas that are lacking in certain species of vegetation. Perhaps the time would eventually come when some wild duck would drop an undigested seed or perhaps a Blue Heron may drop in with a seed stuck to his foot. This lone seed must grow and reproduce and it may take years in nature's progress for that growth to thus become established.

Science has taught us how to assist nature. Seeds can be introduced, thus saving many years of nature's time. Following the advance of agriculture, we observe a similarity in growing vegetation in the waters, to that of the up-

(See No. 3, bottom page 5)

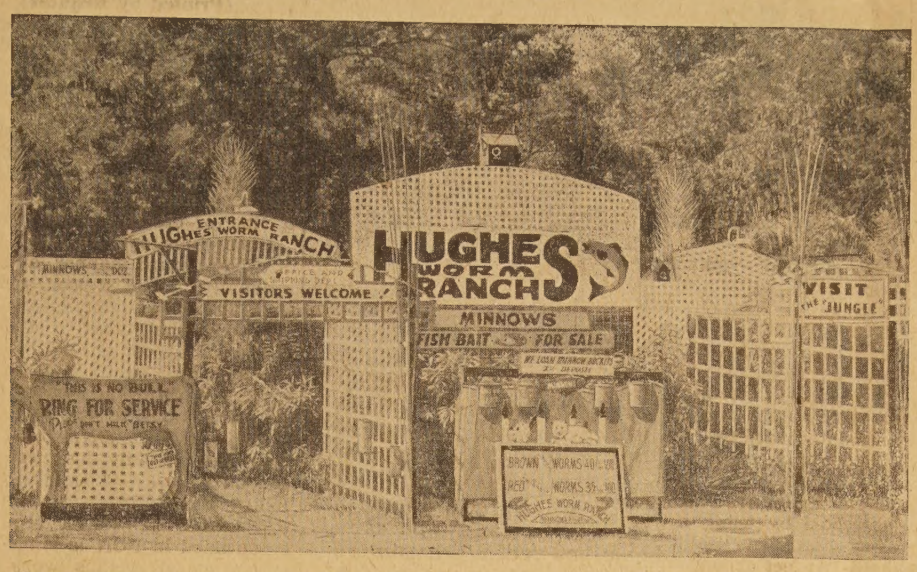
Ducks and Their Food Given



The shoal-water ducks, called "puddle-ducks" include such as the Mallard, Black Duck, Pintain, Teal, Gadwall, Baldpate, Wood Duck, and European Widgeon. Out of nearly 200 stomach contents examined, I find that, for example, the Mallard is very partial to wild rice in the Northern states. He eats a great deal of pondweed (Potamogeton) seed, plenty of bulrush (Scirpus) seed and lots of coontail, particularly in the Southern states. The Black Duck eats the pondweeds, also wild rice and bulrush seed, some wild celery, naias, smartweed, burreed, and others. Pintail are very fond of wild duck millet. The teal ducks also go for this food. In general, here is a group of shoal-water duck foods: Wild rice, smartweed, bulrush, burreed, naias, pondweed (several species), water shield, frogbit ducksmeat, pickerel plants, wapato duck potato, wampee duck corn, coontail, chufa, and salicornia. Space does not permit the listing of each species of wild duck and his principal food.

In regard to the diving ducks, these include the Canvasback, Redhead, Bluebill, Ruddy Duck, Ring-Necked Duck, Golden Eye, Bufflehead, etc. The Canvasback is more or less named after his favorite food, the wild celery. The scientific name of the Canvasback is Nyroca Valisineria, whereas the scientific name of wild celery is Vallisneria Spiralis. He likes wild celery and sago pondweed better than anything. Here are some of the other principal foods of the diving ducks: Redhead grass, brownleaf pondweed, muskgrass (chara), naias, water smartweed, deep water duck potato, banana waterlily, submerged ducksmeat, coontail, and, of course, the wild celery and sago pondweed and several others of lesser importance.

Chesterfield Harden Hughes' Worm Ranch



Front entrance to the Hughes Worm Ranch, which has made the owner so much money he pays his income tax in four figures. That means somewhere between $10.01 and $9,999.

Worm Profits Put Man in The Money

Sometimes the worm will turn in your favor. That is what happened in the case of Chesterfield Hardin Hughes, of Savannah, Tenn., who makes so much raising worms for fishermen that he is said to pay his income tax in four figures.

By FRED E. WANKAN
Story Published in The Tennessee Conservationist

WHEN Chesterfield Hardin Hughes was studying the masters of music at the Cincinnati Conservatory he had no dreams of being a worm rancher. While wrestling with Bach, Beethoven, Mozart, Liszt, and their like, his mind was in the sky and not down in the earth where the lowly worm dwells. His first thoughts and dreams were of being a Paderwreski but after two years with the masters he forsook them to tickle the ivory for the leading show boats of the day. It took a turn of events as well as a turn of the worm to give him visions of a profitable business in Red Wigglers and Brown Anglers.

From his earliest days, the 44-year-old Chesterfield enjoyed fishing. He found that red worms and brown anglers would lure a bass, bream, blue gill, cat, or even a trout to his hook. He fished for fun in those days, went to school because it was the custom, and played the piano for pleasure.

Short Military Career

Young Hughes graduated from the Hardin county high school at Savannah, Tenn., in 1917, and was sent away to the University of Tennessee to prepare himself for a military career since at that time, as now, we were fighting the Germans. The flu and the Armistice cut short his prospects for a martial life. Young Hughes, like all the rest of us, believing the world was safe, went back to doing what he pleased. Hughes said, "I wanted to be a pianist, so off to the Cincinnati Conservatory I went and studied the masters for two years."

In discussing his eventful career, he stated, "Popular music gave me my chance so I quit my ambitions for a classical profession and took to the show boats. The James Adams was my first job. Here I played at every city and town on the Chesapeake Bay and as far south as Virginia."

For 19 years the James Adams of the Chesapeake, the Cotton Blossom and Hollywood out of New Orleans, as well as many night clubs, according to Hughes boasted of the "Piano playing boy from Savannah on the Tennessee." Many are the river towns on the Mississippi, the Ohio and his own Tennessee who listened to this man who was destined to have one of the most unusual ways of making money of any man in America.

No Time for Girls

Hughes is a bachelor—not afraid of women—just never had time to get around to them, he explains. His vaudeville career was cut short by the death of a brother, Paul, at Savannah, Tenn., in the early part of 1939. "Nineteen years of it," he explained, "I was in Pittsburgh at the time with a job that was paynig me more money than I had yet had with any show boat or night club."

After the burial of his brother, Hughes decided to stick around Savannah for a while and help with the general mercantile store belonging to the Hughes family, in the sleepy town on the Tennessee. Things were happening to the Tennessee valley. The old river was having its face lifted. At near-by Pickwick one of TVA's key dams had been built, creating one of the chain of the Great Lakes of the South. Hughes had not lost his zest for fishing so he gathered a few of his choice worms and "lit out" for Pickwick Lake where the fish were waiting with open mouths for his luscious worms.

Needs More Worms

The fishing fever grew and as it mounted he needed more worms, so he payed some of the river darkies, boys who knew the habitat of the Hughes brand of worms, to dig him several gallons. He planted a box of them—"just a pine box," he explained, "about 18 inches wide, two feet long and ten inches deep. It was not long until my old cronies were coming to me for bait and I had to plant more boxes." All of this put ideas into this showman's head. In 1940 he planted several boxes—enough to supply friends. He soon found the fishermen from distant places coming for his worms. "I just had to put a charge on them. I placed an ad in the local paper for more worms. The boys brought them in. That called for more boxes. More fishermen came for my worms—the fish ate them up and here the fishermen came back for more worms. That is how I got started in the worm ranching business."

"In 1941 I planted a pit in the back yard of our home. This pit was 10 ft. by 10 ft. square and 3½ feet deep. I filled it with all the worms I thought it would stand. I knew I would have enough bait for the local boys as well as those who came to fish from distant places. However, I soon found my stock of worms growing low despite the fact they reproduce very fast. I had to resort to the newspaper ads and the worm diggers again. Soon I began to get orders for worms from fishermen who had been to Pickwick from other states. They had seen my boxes and wanted to plant a box of Tennessee worms of their own, or wanted a few hundred just for fishing purposes in their home waters."

Big Demand for Worms

The success of 1941 fired Chesterfield Hardin Hughes' imagination. "It seemed there was no end to the demand for my red wigglers and brown anglers so I had to prepare to meet that demand or close up shop. I had no idea or desire to go into the ranching business with worms or anything else. I really wanted to go back to the show boats. I knew they would soon be making the Tennessee towns all the way from the Ohio to Knoxville when the dam program was complete on the Tennessee.

"But here looked like a business that needed a master—not of music but of worms. I went to Peoria, Ill., where I took a short course in "wormology" at the Bureau of Zoological Research, and came back and prepared for the 1942 season. I planted 16 pits 10 ft. by 10 ft., 3½ ft. deep, and went to work in earnest to supply the demand. I placed ads in sporting magazines. I also advertised in the local paper to keep the boys of my section busy digging worms for my pits. Orders came by the thousands and today with 20 pits, despite the war, I am shipping worms to the 48 states of the American Union and some are going to Canada." When asked about the size of his orders he stated they were from 150 to 20,000. "I have one firm buying 20,000 worms from me a month," he said.

Ranch Covers City Block

The worm ranch has now expanded over the principal part of a city block and it keeps a well-staffed shipping department busy preparing the worms to go out by parcel post. When asked about the counting and the packing for shipping, Hughes stated, "We count—never average — them, and of course we throw in a few extra for good measure. We pack them in damp moss or other light moisture-holding material, and put in tins or boxes for shipping."

When Hughes first started selling worms and putting up his signs on the outskirts of Savannah on highway 64, the people smiled about a man trying to make money out of wigglers and anglers, but they kept buying his worms at 35c per hundred and taking their creel limit from the fishing streams and Pickwick Lake. Now no one laughs at Hughes. They take their hats off to him and even some of the natives will tell you that he pays his income tax now in four figures. Hughes just smiled when asked about the income tax story.

Showmanship in Worm Business

Hughes was not in the show business 19 years for nothing. He has put showmanship into his worm ranch. You would think you were entering the gates of a circus when you go onto the grounds of his worm ranch. There is a large sign painted on white in red, yellow and black which reads "Entrance to Hughes Worm Ranch." When you arrive at the door where he has all his 20 "hatcheries," as he calls them, there is a sign "Visitors Welcome." On the inside is a sign "Visit the Jungle." It's a jungle all right, but an orderly one.

The 20 large pit hatcheries are all covered in burlap or other covering so the sun does not reach "the good earth" above the wiggling worms, just under the surface. All you have to do to see whether they are really hatching or not is to raise the cover of one of the pits and fork up a bit of earth and there the worms are by the handful. Yes, there are eggs, too—about the size of a grain of wheat or less. "Each of these eggs," he explained, "will hatch out 4 to 6 worms in 30 days and they are full fledged adult worms, two to four inches in length, in 120 days. They hatch the year around provided the temperature in their breeding places does not go below 40 degrees. I have taken care of that feature by covering the hatch beds with all the leaves of the family yard in the winter time.

What Worms Eat

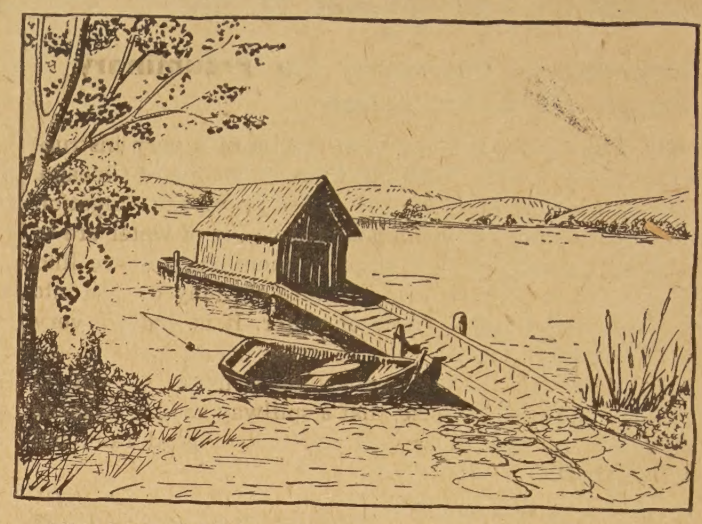
"Worms eat but they need no points to take care of their rations. A little corn meal, cottonseed meal, sour milk and coffee grounds keep my worms fat and sassy. All you have to do is stir this kind of worm grub just under the surface. They will come up and get it. Of course they would eat ground meat," he explained, "but why cultivate a worm's palate for meat when he will stay as fat and happy on corn meal and buttermilk?"

There are no epidemics in wormland, or at least none have visited the Hughes worm ranch. "No, I have never heard of any worm diseases," states Hughes. "They grow, multiply and replenish the earth, if you will keep the temperature at 40 degrees or above. They are waiting the palate of a hungry bass."

Chesterfield Hardin Hughes closes down shop from the 15th of December until the 15th of March and just lets the worms worm it out for themselves. Hughes himself "lights out" to New Orleans to visit the night clubs where he is still known for his piano playing days. He may don a tuxedo and give them a few tunes to show them that the worms have not eaten away his love for music although they have filled his pockets with cash—something the ivory keys did not do.

Give a Man a Fish He Can Keep

Contributed



This beautiful lake — looks so inviting
A few may fish; but it's not exciting
Now the boat is idle and the oars are dry
They can't catch a mess that a man can fry

There's fifty thousand fishes in this lake
Mostly too small for one to take
Because of the law, granting no permission
By the will of the Fish & Game Commission

One hundred thousand fishes in this lake
Smaller and smaller; with less to take
The re-stocking came without intermission
By the authority of the Fish & Game Commission

A million fishes they must raise
To stock and re-stock for political praise
We've too many fishes; don't need many more
Any one can see that our fishes are poor

To make matters worse we have a closed season
When our fishes propagate without reason
There's no feed to feed 'em, so they do not grow
That's why we can't keep 'em — that we all know

Could we reduce the number — 'till there is food to spare
Fertilize the waters and re-stock with care?
We could have bigger fishes without more addition
It would be a kindly act for our Fish & Game Commission

(Here's a poem and picture sent to FCN by a sportsman who evidently knows something about fish. We are printing the poem just to remind the game and fish commissions not to forget their obligations to the sportsmen.)

No. 3—

land. In some instances, acid bottom soil conditions can be corrected by the introduction of limestone to bring about a better growing condition for plant life.

All of these things lead up to that same fact, Wild Ducks Must Eat, and the kind of duck shooting you will enjoy next season, sort of rests in your own hands.

If you want to know what to plant and when to plant it in order to attract wild ducks to your lake or stream, write Mr. Coon a letter and he will give you the "low down." Write him at Game Food Nurseries, Oshkosh, Wis.

(We wish to thank Mr. Coon for the foregoing article, and extend to him the invitation to write another of his good articles for FCN any time he has time to do so. In the first issue of the paper Mr. Coon wrote a story dealing with the necessity of plant life in fish ponds. That article was read by everyone who received a copy of the paper, and we received many compliments on the story.

There's More Than Meets the Eye in Dam Construction, Chicago Man Writes

Engineer Is Necessary For Preliminary Stages Of Construction

The Fish-Culturist News is in receipt of a very instructive and timely article from Mr. Chas. B. Boone of Chicago, relative to building lakes for use as fish ponds and irrigation projects, particularly if the impounded bodies of water are to be of any consequence. One point he mentions that we find to be of much importance is the failure of many to take into consideration the surplus flow of water. It is, indeed, very easy to underestimate the flow of water which rushes down a valley or ravine. In this connection, it might be well to emphasize, and re-emphasize, that a spillway should be made of such size as to take care of not only a good rain, but also A FLOOD.

Mr. Boone's article comes to us in two parts: one in the form of a letter after reading a copy of the first issue of FCN, and another after he had received a copy of the second edition. Along with his subscription also came an order for THE FISH POND, which he mentions in the second letter of his article. We do not hesitate to state that this is one of the best articles yet received by FCN, because it is very easy to discern that Mr. Boone is an experienced man and knows whereof he writes.

The article:

I have before me a copy of the first edition of The Fish-Culturist News which was passed on to me by Mr. Vol Brashears, Berryville, Ark., and will say that your idea to encourage a program of constructing artificial lakes of various sizes and at frequent intervals the country over is by far the most commendable I have come across in many a day; and, I might add, that I hope your publication meets with the success it so rightly deserves and that I never miss a single copy of it.

The idea is not at all new, but a general program has been discouraged largely by faulty construction of dams which did not stand the gaff, or by improper methods of by-passing the surplus water, or muskrats or crayfish cutting holes through at or below the waterline, resulting in total destruction; and, one or two such failures to a neighborhood is enough to discourage a lot of well meaning people from making any effort on their own account, and right in this connection, allow me to suggest that I think it would be a fine idea for you to have the cooperation of a capable engineer to answer general inquiriies of farmers and others who are interested, with regard to the sizes, shapes, heights and slopes of dams to be built in relation to the area and depth of water to be impounded, and correct ways of constructing spillways and by-passes according to individual requirements that would let the surplus water back to its original course by easy stages that would not ruin the whole project. A lot of expensive lost motion and heart-breaking disappointments would be eliminated if the services of an engineer are secured in the start of any artificial lake of whatever size or wherever located.

There are few people, unfortunately, who realize that it is important to take probings at the foundations of dams to be certain leaks can be avoided; then there are problems of estimating falls, capacities, proportions, ratios, and a variety of things that engineers know about because it is their business to know, and the lack of that knowledge more often than not results in construction that does not stand up,—and discouragement that is contageous.

In closing, I want to bid you godspeed in your undertaking and I hope your efforts strike a chord of response that will reward you with the satisfaction of seeing the length and breadth of our country dotted with tens of thousands of lakes, full of fish—and other wildlife—and enough water for irrigating to insure full crops of berries, vegetables and flowers, however hot and dry the seasons may be; for an abundance of everything is at our fingertips waiting for a little intelligent effort to conserve just a small fractional part of our God-given rainfall. (Yours truly, Chas B. Boone, Chicago.)

Second letter from Mr Boone:

I have your letter of recent date and have received my copy of THE FISH POND, which I consider worth many times over the dollar it cost, for it is brimfull of information that is interesting and logical, but in addition to the instruction and knowledge to be gained by a thorough study of THE FISH POND, I would recommend—with emphasis—that a well-trained engineer be employed, on the ground, if possible, for at least the first rudimentary steps of constructing any lake or reservoir of any consequence, for the total cost of work that has already gone to waste for lack of engineering skill in the start, would, I expect, amount to enough to pay every engineer in the United States a fair salary for life.

This is not a reflection on the judgment or honest efforts of anyone, but is mainly due to the fact that formations and general conditions differ so widely in different localities that methods employed successfully in one section will not apply in another; and, that is where the services of a capable engineer should come in, for he is thoroughly schooled in estimating construction commensurate in strength with purposed weight and strain to be expected under whatever conditions of soil formations or the lay of the land may be. The cost of his services and advice would be negligible as compared with the probability that a lot of time and hard work may be lost through inadequate or disjointed construction.

Then where a lake is to be constructed by impounding water in a natural valley or a small branch bottom between hills on either side, there is always the probability that the floor of the valley is under-laid with various strata of sand and gravel which may occur at any point between the hills on either side as the water course has doubtless changed many times during the ages, leaving sandbars which may be large or small and may be anywhere from a few inches to several feet below the surface of the general level of the valley floor.

Now, unless probings are taken at very frequent intervals, the entire length of the location, the dam may be built right across some subsurface structure of loose sand and gravel and no one know the difference until an ooze or seepage occurs on the downstream side of the dam. This condition is, of course, brought about by unearthing the gravelbed on the inside of the reservoir for dam material and admitting the direct pressure of some hundreds or thousands of tons of water which, in seeking its level, is almost sure to create what engineers call sandboils, and which may occur at, or some distance below the dam, wherever the resistance is least.

I have seen such breaches appear first as much as a hundred yards or more on the downstream side of the foot of the dam wherever the upper crust is most weakened by the creek bed or otherwise, but in any alluvial formation, destruction is rapid and complete if a trickle of water under pressure is allowed to start.

I am not making an effort to promote business for the engineers, as a favor to them, particularly, for they have given me so much inconvenience on my own jobs and jobs I have supervised for other contractors that I do not even wish to be an engineer myself; but, like dentists or bankers, we need them for what they can do for us, and even if they do charge like specialists, the smartest money that can be spent is to employ them wherever their services are needed, for whatever the benefit of their knowledge may cost, it is in effect the proverbial stitch in time, for their strongest point is to guard against contingencies that may appear trivial, yet result in the disaster of total loss.—Chas. B. Boone.

(Well, Mr. Boone, we wish to thank you very heartily for sending in such a fine article. Maybe someone who is reading this issue and who has been intending to build a dam which would impound a sizeable body of water will read your story and take heed of its contents and not be disappointed later by a washed-out dam.

(Right here let us mention an incident which came to us a few years ago about a fellow in Texas who had spent near $25,000 to build a lake in which to raise minnows to sell for bait. About two years after the lake had been built and the minnows were about ready to be taken, along came an almost unprecedented rain . . . . and the dam went out. There went not only his investment, but many times more, probably, in the crop of minnows.

(Another incident which happened not far from here, might also be well worth mentioning. A hunting and fishing club was formed. A makeshift dam constructed, and 18 months or two years time given the fish placed in the lake to reach legal size. What do you think happened? Another big rain . . . . another washed-out dam . . . . another disbanded club, with considerable financial loss to the members.

Brother, you know whereof you speak.—The editor.)

Iowa Man Passes Along a Good Idea

Here's a helpful idea that will be happily received by many clubs and others who have been bothered with an overgrowth of moss in their fishing lakes and ponds. Our fellow-sportsman W. H. Robinson of Des Moines, Iowa, and a member of the Clearwater Lake club, sent it in. He writes:

"I have just finished reading your publication, FCN, and found it very interesting.

"We have an 18-acre lake stocked with black bass, crappie, and a few perch, and an abundance of small blue gill. Our fish problem is the bluegill, which seem to be a very small or stunted variety.

"Up until the past year we had a moss problem, also, which nearly took our lake; but this has been overcome by using a 75 h.p. inboard motor speed boat and about 100 feet of barbed wire. The method used was dragging the wire and encircling the moss; thereby uprooting it, then floating it to the shore and taking it out with pitchforks."

That one little paragraph should help many a club out of their moss difficulties, if they will only go to work. If you're building a pond and there are trees, seems it would be a good idea to cut the trees off as near even with the ground as possible in order to allow for gathering up the moss with the wire idea in later years. If you already have stumps in your lake, though, you'll have to work between them, and you will find this very difficult.

If you know how to apply sodium arsenite, or bluestone, you can kill moss and some undesirable vegetation,—but you'd better be sure you know how to use it before you try it.

Do We Need a Lake Service Company ?

One of these little characters is what you turn into immediately when your name is

placed upon the subscription list of this little paper. The other, which is a symbol of some political party—and not the well known phrase—is how you feel when you don't send in that subscription $1.

If you want to go to heaven, you'd better send in that $1.

(If that little fellow with the long ears doesn't suit you, we'll just change him to an elephant.

(Printed by Request)

A man who has had 20 years or more experience in building lakes, raising fish and in creating good fishing in general, has written to FCN asking that a story be published for the purpose of gathering information relative to setting up a special service staff to operate club and private lakes, with a view of creating good fishing.

Most clubs operate their lakes in a hap-hazard manner, and consequently fishing is poor, and furthermore, club members are slow in paying their dues—and in lots of cases drop out entirely, leaving the financial burdens to the directors with no money in the treasury; whereas, if fishing were good, no doubt club members would keep their membership dues paid up, and as a result the clubs would be kept in good financial standing.

The plan the writer requested be outlined in FCN is simple and should by all means work very successfully, although such a plan may not be inducted until after the war, due to the many shortages and inconveniences brought on by the war effort.

But, here it is:

There would be a crew of experts qualified in every way to take over a lake and supervise it in a manner which would insure good fishing. That would entail, of course, considerable work.

First, the fish population of the lake must be determined; the condition of the fish considered; if there is too much moss or other useless plantlife, that must be eliminated and controlled.

The plankton and flora of the lake must be taken into account and studied; the soil surrounding the lake would likewise be analyzed. This would require the servces of a biologist and soils technician.

After the population of the fish in a given lake is determined, the balance of such population must be corrected, and the remainder properly fed.

The cost of such service would range in the neighborhood of $15 per acre per year. The club would also pay for the fertilizer used in the lake, which should run around $10 per acre.

A contract to service a lake under the plan would be signed on a three-year term with the option by the service staff to either raise or lower its charge, and the club would have the option to discontinue the services of the staff at the end of the three-year period.

The Service Staff would receive an initial fee, with either monthly or quarterly payments thereafter. This arrangement of payment would back up the guarantee of the Service Staff that good fishing would be created.

In order to put the Service Staff into operation, it will be necessary to find 100 clubs and lake-owners to try the plan.

This is, of course, only a tentative plan, and still is in the formulative stage, and for that reason this story is printed in an effort to learn what clubs and lake-owners think of the idea. A few clubs have already signified their approval, but it will be necessary to have a large number of clubs willing to try the plan in order to put it into operation, owing to the Service Staff's large expenses.

We honestly believe that such a plan would do our fishing clubs and lake-owners a lot of good, and that the clubs would get value received for their money.

Everyone wants to see better fishing, but in order to create good fishing men of experience must be paid sufficiently to undertake such projects.

The monetary incentive should work with bettering fishing as well as anything else.

Write the Editor of the Fish-Culturist News what you think, and such information will be filed for reference.

To Our Subscribers, We Say 'Thanks'

WE want you to take this as a personal expression of appreciation for the dollars you sent in for your subscription to The Fish-Culturist News. We're mighty proud of the number who subscribed, and we feel that you understand that gathering names and addresses on a nation-wide scale of people interested in really doing something for our fish and wildlife, takes time. There really is no need to publish the paper more often than quarterly until several thousand interested persons are found. Your dollars have more than paid for the cost of printing and mailing, and in a way you can feel that your dollars have been spent on conservation. We don't want to make a lot of money out of the paper (what good would it do us?), but we do want to do everything possible to provide good hunting and fishing for the boys who are away fighting for this very thing—among others.

The subscription price for a whole year is no more than the cost of one high-power rifle shell—or four shotgun shells. That's not too much.

All we want to say right here is this: If the people continue their cooperation in the future as they have in the past, you may look for a national outdoors newspaper published on a bi-weekly schedule sometime in the future.

Lend us a hand now, and we assure you that we will give you your money's worth and more in the future. Send in those names and addresses!—The Publisher.

'The Fish Pond' Complimented

Those of you who received a copy of the December edition perhaps read the story about THE FISH POND, a book on pond construction and stocking. Several copies were sold, and those who received the book wrote to FCN that it is worth many times the dollar it cost each of them. If you want a copy of this informative little book, send a dollar to FCN, and your copy will be mailed out promptly.

THE FISH-CULTURIST NEWS
Box 455 — Durant, Okla.

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Georgia Man Here Again

(Well, fellows, here's ole' Jim Reeve, back in the columns again this issue, and we're mighty glad to have him. He's really got something down there in Georgia with that hatchery of his, and if you want to know where you can buy warm water fish, just let him know what you need. He's ot 'em.)

ABOUT ten years ago Jim Reeve,, down in Calhoun, Georgia, decided that he wanted a fishing lake of his own. He purchased an old farm with a large spring on it and built a small lake of five acres. This was stocked with small mouth bass and blue gill bream.

This water seemed to be very suitable for the propagation of bass and bream and he soon found that he was producing many more young fish than he had water available for growing these fish to adults. On investigation outlets for surplus production Mr. Reeve discovered that there was a very good demand for small fish for restocking purposes and his surplus fish were readily sold to different states, clubs and individuals throughout the Eastern U. S.

As the project developed and demand increased, the owner decided to sell out his oil business and devote all of his time to the fish hatchery. In 1940 additional land was secured and a large hatchery built. A program was begun to build up a brood school of large mouth bass, small mouth bass, blue gill bream, shell-cracker bream, (strawberry bream) and crappie. The results were most satisfactory. The hatchery now has some 75 acres under water and in two more years time will reach full production of two million fish annually.

Fish, Any Way You Want' Em

Some bass are sold as fry, or baby bass, which they have successfully shipped by Railway Express all over the U. S. from coast to coast. The majority of the production of bass and other three specie are sold and delivered as two-inch fingerling. These are sold with a live delivery guarantee all the way from Maine to Texas. Until further research permits, 1500 miles appears to be the limit for satisfactory delivery of fingerlings. Some adult fish are sold to states and clubs for brood purposes but the output of adult fish is very limited, and delivery of them is a much greater problem.

Fingerling are delivered in two ways. Small orders are shipped in 10 or 20 gallon containers by Railway Express. Large orders are delivered in specially designed live fish transport trucks. These trucks were designed and built by Mr. Reeve. Quite a large number of delivery difficulties have been met and overcome so that they are now able to make most satisfactory deliveries to any point within 1500 miles.

The hatchery and farm around it have been given the Cherokee Indian name of Amakanata (Spring of the Lucky Hunter) after the large spring on the place. They also own some 600 acres of land which gives water-shed control for the hatchery. The land is used for production of timber, beef cattle and small grain. A crew of six men operate the farm and hatchery.

Development Not Easy

The development of this hatchery has not been easy sailing by any means. Many problems have been met and solved through the trial and error method and through suggestions and advice given by the personnel of U. S. Fish and Wildlife Service and the different state departments of wildlife. Both federal and state departments have been most cooperative with Jim in the development of this project which now ranks as one of the largest privately owned commercial warm water game fish hatcheries in this country. The business is operated as a supplement to the different state and federal wildlife services and the management is at all times ready and willing to cooperate fully with other wildlife organizations.

Mr. Reeve is quite an ardent fishing fan. He has acquired quite a reputation in his state on his talk to different lucnheon clubs on "Small Mouth Bass." His undertaking is rather unique and he expects to demonstrate that a privately owned commercial hatchery can be made practical and profitable.

(Maybe in the next issue we can persuade Jim to send in that "Small Mouth Bass" talk of his and find out what he's been telling those club guys.' Eh, Jim? Come again.)

We want to thank Mr. Boone, a contractor, of Chicago, for the fine story he wrote and sent in. It's a dandy, Mr. Boone.

THE FISH-CULTURIST NEWS
Box 455 — Durant, Okla.

FARM FISH PONDS

FARMERS and land owners are building fish ponds today as they have never built before and the building will continue on the farms until every land-owning farmer will have a good producing fish pond. We are learning that fish can be produced cheaper than any other meat. As to why it has taken us so long to wake up to this fact is a question that probably some of our good readers can answer for us.

The fish pond on the farm is not only going to provide a part of the meat for the farmers table, but to some it is going to provide an annual income. The size of this income will depend on the size of the pond. The location of the pond doesn't seem to bother as we have automobiles and good roads and where there is good fishing the fishermen usually find the place. No fisherman minds paying a dollar fee to fish in a pond that he knows contains plenty of fish. The trouble the pond owner will have will be keeping the number of fishermen down to the correct number to keep them from taking all the fish out of his pond. Of course the pond owner will have to have a bag lmiit on the number of fish that one fisherman can take in one day, as there are some folks who fish who don't know when to stop.

The fish pond that is constructed and maintained in keeping with today's specifications can be expected to produce from 150 to 300 pounds of fish per acre per year. Lots of farmers will be able to build a fish pond without spending any extra money as the work can be done after the crops are laid by and gathered.

Those of you who are going to build fish ponds and have never had any experience in building dams for holding water, let me suggest that you obtain the best information you can get before you start your dam. Any one can build a dam, but there are a few factors to be known before you start, if you want the dam to stay. This information is furnished by the U. S. Fish and Wildlife Service, Dept. of Interior, Chicago, 54, Ill., or we have a booklet (the best in the world) telling how to select the site, lay out the dam, build the dam, build the spillway, put in the drain, how to stock the pond with fish, kind of fish to stock with, kind of natural food to put in the pond, and how to fertilize the pond, in fact it just about answers any question you would want to know in building or stocking a fish pond. If you want this book send one dollar to The Fish Pond Editor, P. O. Box, 455, Durant, Okla.

Next edition I hope to have something on fertilizer for your pond. If you have a question you would like to have answered on pond construction, stocking or fertilizer send it in with your name and address, the answer is free.

Yours for better fishing,
THE FISH POND EDITOR.

Water Pollution Kentucky Problem

We have in Kentucky more miles of running water than in any other state of the Union. With this large mileage of running streams, you can readily see the added work that is involved in keeping down pollution, and patrolling this large mileage of water.

One of the most destructive things to fish life with which we have to contend at the present time is that of the pollution of our public waters. This contamination is caused by many things such as copperas water flowing from our coal mines; oil waste dumped into the streams from our oil wells, and refineries; sawdust from our sawmills, and city sewage from hundreds of cities and towns; and waste from the thousands of factories located along the banks of our streams. But probably the most common and one of the most destructive (in Kentucky) is that of distillery slop and waste. This sewage does not directly kill the fish but as it deteriorates it uses the oxygen up in the water and throws off carbondioxide, resulting in the total destruction of the fish or the driving of them away from their homes.

The great Ohio river, which forms one of the boundaries of our state, has been practically depleted of all marine life as far down as Maysville, Ky. Because of offenders above our state boundaries, such as the great steel corporations of Pittsburgh, and other large cities of the eastern section, also city sewage from the same communities, we have lost one of our best fishing streams. This pollution of the Ohio river is beyond the control of the state of Kentucky and must be dealt with by the federal government. Thus far nothing has been done, with the exception of the introduction into congress of the Barkley-Vinson anti-pollution bill, which was amended to the extent that its passage meant practically nothing and even then the bill was defeated. It has been estimated by Dr. H. Garman, head of the department of entomology and botany of the University of Kentucky, at Lexington, Ky., that the pollution is moving down the Ohio river, killing all marine life as it goes, at the rate of eight miles a year. That means our fishing waters are being destroyed at the same rate and there is nothing we can do about it. Restocking of these polluted streams with additional fish is merely a waste of time and money and for that reason we are helpless to stock these streams.

The division of game and fish of Kentucky up until the time of the war had a man in the field who was studying the conditions of the streams as to pollution, food, oxygen content of the water, amount of silt deposited in the beds of the streams. This man, a graduate biologist, keeps the director and superintendent of hatcheries posted as to his findings and in this way we were able to reach a definite conclusion as to the streams that should and can be restocked and as to the kinds of fish to restock them with that are best suited for that particular body of water.

This biological stream study proved very successful and I firmly believe that it is one of the important factors in solving our own fish restocking problems.

In conclusion, I would like to say that you sportsmen, and especially you fishermen, if you want better fishing you will have to cooperate with your law enforcing agencies to stop this stream pollution and to see that every law pertaining to the taking of fish is abided by and with that help I am sure that your division of game and fish will see that you get fishing aplenty.

By FRANK P. PHIPPS
Supt. of Hatcheries
Div. of Game and Fish
Frankfort, Ky.

If you want bullfrogs, write Vol Brashears at Berryville, Ark.

Tadpole Control Is Explained

By GLENN GENTRY
Supt., Flintville, Tenn. Hatchery

After wrestling with large volumes of bullfrog tadpoles and seeing them literally smother young bass because of this volume, the writer decided to try eliminating this problem at the Flintville state fish hatchery.

Usually, only the tadpoles of the bullfrog are found in the ponds during the draining season, because the bullfrog tadpole requires a longer time to develop into a frog than do any of the other species of frogs and toads. A late spawning by the leopard frog might happen occasionally but not often.

The bullfrog and green frog are the only ones which deposit their eggs on the surface of the water. The green frog eggs won't be encountered as often since this frog prefers a more secluded area for spawning. The eggs of these two frogs may be recognized by appearance, a film of gelatinous material dotted with thousands of blackish eggs with a whitish area on the under surface. These masses are usually anchored to some under-water vegetation near the edge of the ponds.

We began taking out all egg masses as soon as they appeared in the spring of 1943. Not more than 50 egg masses were found and removed during the spawning season. It began on April 12, and the last eggs were found about June 6. Most of the eggs were found after a warm spell of weather which lasted several days with the thermometer staying above 50 degrees during these periods.

Very few tadpoles were found in any of the ponds when we drained them during late August. The smallmouth bass ponds had the most tadpoles since this species of fish seems not to prefer tadpoles as food.

Hatchery conditions naturally vary with geographical locations and climate, but by studying the life histories of the frogs in that particular vicinity, one should be able to cope with any problem which frogs and toads might bring about by their spawning habits. The bullfrogs could be caught before spawning but their legs are considered to be a choice food item.

Highschool Boy Joins Our Rank

A. F. Nordstrom highschool student of Santa Ana, Calif., after receiving a copy of the first issue, writes that he likes The Fish-Culturist News and wants to be a subscriber. He says:

"I received a copy of your first edition from Mr. Brashears over in Arkansas. I like The Fish-Culturist News very much. You see, I am 17 and go to hgihschool here in my hometown. I always have been interested in wildlife, and have had many peculiar pets.

"I like helping wildlife better than destroying it, as most fellows do.

"I am now raising pheasants. I haven't a very large lot, but I keep them in a 20x8 ft. pen. I am now going to try raising frogs. I would like to subscribe to your newspaper as soon as possible. Send me subscription price. Write if I can be of any help to you.'

Well, fellows, that's the way one young fellow feels about it, and one of his kind is worth more than a hundred poarchers.

We'll bet this young fellow finds sale for every one of his pheasants after this story has been out a while. If you raise any frogs, A. F., let us know about it, and we'll tell 'em about what you have, and you won't have any trouble selling every last one of 'em.

This is at least some evidence that if the oldsters will leave the young fellows a good supply of wildlife that the young fellows will take care of it.

NEW HATCHERY DIETS

Fish must have food to live and grow just as any other living thing. Wild fish secure the type of food they like or what they can get from the waters where they live. Some species often roam over considerable areas in search of the desired meals.

Hatchery fish are confined in small ponds, tanks, etc., in such large numbers as to make it impossible for natural food forms to develop in sufficient numbers to provide an adequate supply.

This is particularly true in trout hatcheries where thousands of fingerlings are reared in troughs or small tanks. In bass and warm water fish hatcheries the small fish are hatched or placed in larger ponds which have been fertilized to such an extent that a fair supply of small water "bugs" are available for the fry and fingerlings. These daphna and kindred forms are too small to interest the adult fish, and as there are no suitable foods present other than their own young, they must be fed.

Before the war, there were several sources of commercial materials that made good fish food. Liver, hearts, entrils, and similar meat products were largely used. These were often mixed with cereals, vitamins, etc., to provide a cheaper and in some cases a better feed. Now people are learning to eat kidneys, spleans, hearts, etc. and since there has not been enough left over for the fish, other sources have had to be located. The cereal part of the mixture (where used) can for the most part still be obtained in some form or another.

Some hatcheries have for years secured part of their requirements from sources other than the packing plants. Old farm animals, carp, suckers, etc., have been most frequently used. In former years this was for the sake of economy. Now it is a case of necessity. Carcusses of coyotes and other trapped anmials which were formerly thrown away are now being used for feed. This search for fish feed has been a burden to hatcherymen who were already short of help and are restricted, even as you, in their gasoline and tire consumption.

However, as in most similar cases, some good has come from these difficulties. Thousands of pounds of useless rough fish have been removed from lakes and streams to make little game grow big for the boys when they come home. Also meat which was formerly used for feeding the fish has helped to feed people who had a job to do.

Business Corner

This column is designed to save us a lot of letter writing, and at the same time give us an opportunity to shine the light on happenings concerning the paper. If you have any items for this column, send them in.

WE are sorry to report that we did not pick up one single bit of information for the fellow up in Michigan who had an article in the last issue. He wanted to know how to go about getting a lease on a stream and where to buy brown trout. Since we didn't pick up any information for you, sir, we suggest that you write your state game and fish commission at the capitol and find out what you have to do to secure trout for stocking purposes. See a lawyer about leasing the stream. Yes, we received your subscription, and thanks.

If you want fingerling channel catfish for stocking purposes, write the editor your needs. If a sufficient number want these fish, we will raise a few of them this year. Let us know early, so we may know how many to raise. They will cost you five cents each, plus the Express, and will be delivered when the weather gets cool next fall.

Frogs Multiply Rapidly, Says Arkansas Raiser

Now Is Time to Start Preparations

Want a good hobby that will bring your friends and neighbors from miles around to see what's going on? Or do you want a good sideline, or full-time business? Or, would you like to stock a stream with Jiant Jumbo Bullfrogs. If you do, here's something that will certainly prove fascinating and remunerative if you like the outdoors and have "that something" which makes you love wildlife.

Jiant Jumbo Frogs, the kind that catch every sportsman's eye, and bring fancy prices on the menus in restaurants, can be raised a lot easier than rabbits or chickens, and multiply a thousand times to their one. All you've got to do to raise them is to have a permanent pool of water large enough for the tadpoles to live in until they grow through the stages which eventually turn them into frogs. Here's how it's done:

Any Size Pool

A pool of water any size about 20x50 feet is large enough to afford the necessary space to raise a spawn or two of tads. A board fence about five feet high is placed around the pool, and any number of adult frogs are placed in the pen. Have plenty of shady room between your pool and fence.

When the temperature in the spring has reached a point of 65 or 70 degrees the frogs spawn their eggs. The eggs hatch in a length of time in proportion to the temperature, usually from a week to 21 days. After the eggs have been spawned the adults can be removed, if desired, to keep them from eating the eggs. It won't be long after the eggs have been laid until you will have tadpoles by the thousands. A full grown adult Jumbo Frog will lay an enormous number of eggs. If protected they will hatch nearly a hundred percent, and one spawn from such an adult will stock a creek for a long distance.

The longer the temperature remains above 65 degrees, the larger your tadpoles will be. About 50 or 75 percent of them will turn into frogs the first season in the southern part of the U. S. However, the 25 percent which do not change into frogs, grow considerably larger while in the polywog stage.

The cost of fixing up a place to raise frogs depends largely on whether you have access to scrap lumber. You can do everything there is to do in your spare time, and after you have the pond fenced there is very little left for you to do. By using cottonseed meal as a fertilizer, you can really make those tads grow. Experiments have revealed that upwards of 600 pounds of tads per acre of water can be grown. The cottonseed meal is thrown into the water at two-week intervals, and to such a degree that the water takes on a brownish cast after a few days. This is minute or organic life in the water, known to fish-culturists as plankton, and this is what the tads feed on. However, barnyard manure also can be used, if you can't get the cottonseed meal. Almost any kind of fertilizer will work. Not many people know to fertilize their fish or frog ponds in the same manner as they do their gardens. Simply walk around the pond and broadcast the fertilizer into the water.

Vol Brashears, Berryville, Ark., has had more experience in raising frogs than any one man in the country, and he has sent a lot of the information for this story, which should make you decide to try your hand at raising frogs, if you have the place. He has done more for the frogs in the country than anybody else, and if the country had a few more men like him, the frog population would be up to par; but unfortunately, there are not many such men, and consequently the frogs are on the exit list.

Every sportsman with room to spare should raise a few spawns and release them for restocking purposes. Frog hunting is one of the bet sports there is, and there is a great need for a restocking program. If you want to really stock a stream for better frog hunting, the best way is to raise a few spawns to the frog stage and then take them in grass sacks to your stream and release them. A great proportion of them will reach eating size, whereas only a few reach that stage when left to reproduce and mature themselves.

No doubt after the war there will be a great demand for the frogs for restocking, so if you have a suitable place to raise them, now would be a good time to begin. You can make a business of it, or you can have a dandy sideline or a fascinating hobby.

(Do you know that the female never makes a sound, and only the males make the resounding bellows from which the bullfrog gets his name?)

Easy, if You Know How

In fact, raising frogs is easy, profitable and interesting, says Brashears, if you know how. Anything is easy if you just know how. All you must have is a pond, lake or stream, spring or basin that will hold water and not go dry. Not much depth or water is needed as the frogs spend most of their time on the bank hidden in the weeds, grass or under tree roots, or just anywhere they can find a safe, quiet place in the shade. If there is plenty of vegetation around the water they inhabit, the frogs will hop into it to catch insects, bugs, grasshoppers, millers, or whatever they can find.

The principal food of the Giant Jumbo Bullfrog is crayfish (or crawdads, if you prefer). They also eat small minnows if they can catch them. The frogs cannot catch their food in deep water, so you need plenty of shallow water. Shoreline is the main idea in frog raising. If you have a fairly level piece of ground dykes can be thrown up to a height of two or three feet. Water run into the low places between the dykes and plenty of shade, makes an ideal frog layout.

If you are cooped up in town, but have a goldfish pond in your backyard you can still raise a few frogs. Just order some tadpoles, fence in your pond so the cats can't get the tads, and then—just let nature do her stuff. When the tads have turned to frogs you can release them on your stream.

We'll be having more articles on the frogs, because The Fish-Culturist News is advocating a restocking program in general, and from here on the frogs will get as much publicity as the fish, ducks, quail, geese, and what-have-you.

If you want to know the prices of frogs for restocking, write Vol Brashears, Berryville, Ark., and he will quote prices.

The foregoing pictures were made on the frog farm of Vol Brashears, Berryville, Ark., who is the biggest raiser and shipper of frogs in America. Mr. Brashears has shipped frogs to nearly every state in the Union and has customers all over the country. He has sold more frogs for restocking purposes than any other one man.

IN THE PICTURES: Top left shows an employe on a boardwalk out over a pond. Note the dense vegetation in the background around the pond. Brashear's idea is to emulate nature as much as possible in providing surroundings for his frogs, thus, when restocking frogs are shipped to different sections they are wild and know how to take care of themselves. TOP CENTER, Brashears proves that fish can also be raised in frog ponds. He's shown holding a string of brook trout taken from his lake. A fish-fry followed. TOP RIGHT: Vol shown crating up Jumbos for shipment. LOWER LEFT, a January scene of the frog-raiser's stream running through his frog farm. "Everything's asleep at the bottom at this time of the year," says Vol. LOWER RIGHT, Mr Brashears pouring out a sack of frogs gathered up around the pond. The Brashears frog farm covers an area of six acres. A five-foot board fence encloses the six-acre plot and within this fence there are cross-fences which provide a means of keeping different sized frogs separated. Some fellows wonder if frogs eat fish. Yes, they do—but remember this: Big frogs eat little fish, and big fish eat little frogs; and, just as big fish eat little fish, so do big frogs eat little frogs. It seems to be pretty much a 50-50 proposition —if you eat me, I'll eat you, so to speak. If you are ever in northwest Arkansas it will be worth your time to go see Vol's frog farm. He extends you a personal invitation.

More Frogs for The Colorado

By GENO A. AMUNDSON
Associate Refuge Manager
U. S. Fish and Wildlife Service
Yuma, Arizona

THE writer has had many good messes of large bullfrog legs and not only enjoys eating them but has had a lot of sport in catching them. Once these frogs have become established they will maintain themselves if not too heavly pursued. When they are liberated in areas where there is considerable cover they will multiply and increase very rapidly.

In catching bullfrogs I have used everything from a willow pole and flying rod, to a long cane pole. When catching them during the daylight one must approach them very slowly and cautiously and then by dangling the hook in front of them two or three inches they will strike at it. Contrary to belief that one must use red flannel, I have found that they would strike a bare triple hook and I have caught them with a small piece of leaf hanging on the hook and as a matter of fact with anything that I baited the hook with, just as long as they could see the bait move.

The bullfrog is not only colorblind but he is unable to identify an object that remains quiet and he can only see an object that is moving. This characteristic is also the same with the insect eating toads. Therefore, they will grab anything you dangle in front of their eyes.

The bullfrogs will eat a large variety of foods in addition to insects. He will catch small minnows and when the immature frogs leave the polywog stage, the larger members of the family turn cannibals and eat them.

I believe that the entire length of our Colorado river from Davis dam to the gulf would be suitable for bullfrogs and they would not only provide a lot of sport in catching them but would also provide lots of very good eating, as when these frogs attain maturity, one person can only eat two to four pairs of legs.

Winconsin Utilizes Natural Ponds

Arthur A. Oehmcke, supervisor, ortheast Fisheries Area, Wisconsin Conservation Dept., Woodruff, isc., shines a new light for us upon the utilization of natural onds. Mr. Oehmcke writes that his department is using ponds for f sh-cultural purposes during the summer, and that the plan is working successfully. Due to freeze-out conditions in his section, ponds containing water less than 12 feet in depth are of little use in raising fish through the winter months.

However, the Wisconsin Conservation Department is not passing up the opportunity to increase the production of catchable-size stocking fish.

Read Mr. Oehmcke's letter:

" . . . I note from your first two editions that the stress is placed on fish ponds. In Wisconsin we are utilizing natural ponds for production purposes only. Hook and line fishing will never be practical in our shallow ponds as in the South since we have freeze-out conditions every winter in ponds with a depth of less than 12 feet.

"We are having a high degree of success in raising walleyed pike from fry to seven and eight-inch fingerling in these ponds through the summer months. We are expanding our future programs to include the rearing of Northern Pike, Muskellunge, and Largemouth Bass in this type of pond. We have already experimented with the latter species on a small scale and have had some success. There is insufficient time to expand on this at the present but it might give some idea what is being done with natural rearing pond sites in this part of the country.

"I am certain that your efforts in establishing the Fish-Culturist News will be rewarded by thousands of appreciative conservation employes throughout the United States."

Want-ad

WANTED—At all times, all kinds of animals, birds, and reptiles for Wildlife Show. Write, stating your price to permanent address. Col. Frank L. Hiestand, P.O. Box 203, Greencastle, Ind.

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